



REMARKS

Reconsideration of the above-identified application, in view of the following remarks, is respectfully requested.

I. Status of the Claims

Claims 1, 2 and 5-9 are pending.

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II. Rejection under 35 U.S.C. § 103

Claims 1, 2 and 5-9 stand rejected as obvious over JP 6346014 (“JP ‘014”) in view of U.S. Patent No. 5,478,602, to Shay, and either JP 08073787 (“JP ‘787”) and U.S. Patent No. 5,281,261, to Lin or JP 54138732 (“JP ‘732”).

The Examiner contends that JP ‘014 discloses a water based ink composition for ball-point pens which comprises “pigment, polar solvent comprising water and other solvent (such as ethylene glycol), pH controlling agent, and 0.01-10% thickener which swells in an alkaline medium resulting in an increase in viscosity of the ink.” The Examiner concedes that JP ‘014 does not disclose the claimed thickener, and does not disclose the claimed pigment surface treated with a resin and a surfactant.

However, the Examiner asserts that Shay discloses thickeners comprising carboxyl groups and hydrophobic groups, and thus concludes that it would have been obvious to one of ordinary skill in the art to use such thickeners in the inks of JP ‘014.

In addition, the Examiner asserts that JP ‘732 discloses surface treating pigments with resin, and subsequently mixing the resin treated pigments with a surfactant. The Examiner concludes that pigments treated with both polymer and surfactant, as presently claimed, will

result. To support the Examiner's position that the mixing step will result in pigment particles with both polymer and surfactant, the Examiner additionally cites JP '787 and Lin.

Applicants respectfully traverse this rejection, on the grounds that because the secondary references do not contain a suggestion to add pigment particles that are surface treated with both a resin and a surfactant to an ink composition having the claimed thickener, one of ordinary skill in the art would not be motivated to combine the teachings of the cited references. It is also asserted that the secondary references JP '732, JP '787 and Lin do not teach or suggest a composition containing pigment particles that are surface treated with both a resin and a surfactant.

The main secondary reference JP '732 teaches graft-polymerizing a water soluble monomer onto part of the pigment in an aqueous solution in order to enhance the dispersability and water resistance of the ink. However, the solution of JP '732 is not alkaline, but rather is acidic. Examples 1-3 of JP '732 teach carrying out the polymerization reaction under acidic conditions (pH 6.5). There is no hint or suggestion in JP '732 that the graft polymerizing step will occur or be stable in an alkaline environment. Thus, one of ordinary skill in the art would not be motivated to combine the teachings of JP '732 with an ink composition containing a thickener that is associative and swells in alkaline medium.

The additional secondary references Lin and JP '787 are only cited for further support of the alleged teaching of JP '732. For example, Lin is cited because it purportedly "discloses grafting polymer onto pigment followed by mixing this treated pigment with surfactant," and that "the surfactants coat or adsorb onto the surfaces of the present particles not occupied by polymer." However, Lin, at col. 11, lines 34-40, teaches that the surfactants adsorb onto the surfaces of the pigment particles not occupied by the vinyl aromatic salt to create an electrically

charged species that provides steric (and presumably static) hindrance to separate the pigment particles. Absent these special circumstances, there is no general suggestion or motivation in Lin to treat pigment particles with a water soluble polymer and a surfactant. The Examiner asserts that JP '787 discloses pigment surfaces treated with polymer and surfactant, to produce pigments with stable diameters regardless of temperature. However, JP '787 discloses an aqueous ink pigment dispersion containing an alkali-soluble resin dispersant and a surfactant, wherein the ink is stable over a wide range of temperatures. In order to be effective over this wide temperature range, JP '787 utilizes two separate dispersant systems - a surfactant and a resin. Each of the dispersant systems have a different effective temperature range (see para. 6, English language translation). At low temperatures, the surfactant is ineffective, and does not prevent pigment particles from coagulating due to its poor adsorption on the pigment surfaces. However, at high temperatures, the surfactant is exchanged for the resin dispersant.

In contrast, the claims require a pigment surface treated with a surfactant and water soluble polymer.

Thus, neither Lin nor JP '787 provide any general teaching of treating pigment surfaces with a polymer and a surfactant. Accordingly, neither Lin nor JP '787 can satisfy the shortcomings of the main secondary reference JP '732.

In view of the arguments made, it is believed that the obviousness rejection under 35 U.S.C. § 103 has been overcome, and it is respectfully requested that the rejection be withdrawn.

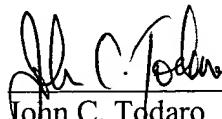
III. Conclusion

In view of the foregoing, it is believed that claims 1, 2, and 5-9 are not obvious over the prior art of record. Claims 1, 2, and 5-9 are believed to be in condition for allowance.

Applicants respectfully request that the application be passed to issue.

Favorable action is earnestly solicited.

Respectfully submitted,



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